EERMC Public Meeting on Combined Heat and Power

August 24, 2015

Rhode Island Legislation

“Beginning on November 1, 2012 or before, each electric distribution company shall support the installation and investment in clean and efficient combined heat and power installations at commercial, institutional, municipal, and industrial facilities….”

National Grid Electric's 2015 CHP Program

- **System qualification**
  - Must be an electric customer
  - System must provide electric and thermal output
  - 55% minimum system efficiency
  - Certain types of generating technologies specifications
  - Must be cost effective

Cost-Effectiveness

- **Must pass screening process and RI benefit cost test (BCR > 1)**
  - Benefit cost test must include cost of all fuels and CHP maintenance
  - Economic development benefit
  - Air quality benefits
  - Adjusted distribution benefits

2015 CHP Program Recruitment

- **Customers can initiate or National Grid may approach customers who could be candidates**
- **Customer works with National Grid account person to coordinate**
  - Engineering study to identify size, scope, and cost
  - Supports program requirements and can also identify barriers to successful implementation
  - Specifies technical requirements (MRD) of system to meet project objectives
  - Cofunded by utility if done by preferred firm

RI CHP Target Markets

- **Markets that we found to be the best target segments are:**
  - Hospitals
  - Universities/Colleges
    - With Central Heating Plants that have a continuous summer load
  - Industrial
  - Nursing Homes
- **These are all large users of hot water and electricity that are coincidentally used**

National Grid Electric's 2015 CHP Program

- **Incentives available for eligible projects**
  - Installation incentive
    - Tiered based on system efficiency
    - Bonus for installation at an energy efficient facility
  - Advanced Gas Technology Incentive
  - Performance incentive for projects greater than 1 MW
  - Caveats
    - Total incentive package cannot exceed 70% of total project cost.
    - Incentives subject to budgetary limitations and caps
    - Projects 1 MW or larger commit to 10 years of operation or will have to refund prorate portion of incentive
    - Incentives greater than $3 million subject to PUC approval

Requirements of Installed Systems

- **Compliance with Minimum Requirements Document**
- **Thermal and electric metering**
  - Metering hardware should be part of project installation to allow national Grid to collect data
- **O&M services contract required through first major overhaul**
- **Interconnection**
- **Commissioning**
  - 20% of incentive payment retained until commissioning is complete
- **ISO-NE capacity rights belong to National Grid**
- **Customers will be billed on general services tariff, with a minimum customer charge, as opposed to backup service rate**

AGT Program (Advanced Gas Technology)

- **The program is based upon adding natural gas load during the company's off peak period, rather than reducing load through conservation efforts**
- **Incentives to innovative projects that add non-heating load**
- **Incentive is minimum of three calculations; need detailed technical report to provide needed data**
  - the additional margin gain from the project, up to 75% of the project's future margin
  - 75% of the incremental project cost
  - the amount needed to buy down the payback period to 1.5 years
  - remaining AGT fund balance
- **Caveats**
  - Incentives greater than $500,000 require PUC approval.
  - Incentives greater than $50,000 (but less than $500,000) require review with the Division and TEC-RI
  - Customers are allowed to participate in both EE and AGT programs as long as they meet both sets of requirements
  - Incentive may be reduced by amount of customer contribution necessary for new or upgraded service/main to serve customer

CHP Progress

Successes:

- A 12.5 MW CHP facility installed in 2014, commissioning almost complete.
- A 60 kW installed at a local multi-family site

Ongoing:

- Eight projects in various stages of investigation

Projects that didn’t go ahead:

- Two projects have been studied, but facilities decided not to move ahead

Current Barriers to CHP in RI

- **Economics don't meet customer's requirements**
- **Perceived as risky**
- **Unwillingness to assume O&M requirements**
- **Low priority on customer's radar (not their core business)**
- **Lack of gas distribution**
- **Business opportunities in neighboring states**

Problems found with past projects (and our solutions):

- **Waste heat misstatements or incorrectly installed**
- **Lack of maintenance (Now require service contract)**
- **Fuel price fluctuation**

Proposed enhancements for 2016

- **Clarification of system efficiency requirements**
  - Waste to energy, back pressure turbines not required to have 55% minimum efficiency
- **Customer facing CHP manual (in progress) to help understand application and use of CHP**
- **CHP Project Manager to help guide customers through process**
- **Work with vendors and manufacturers to give attention to RI market**

2016 Energy Efficiency Plan Timeline

- August 24 – First draft distributed
- September 21 – Final draft distributed
- October 1 – EERMC meeting to consider approval
- October 15 – Filing with RI PUC

Discussion

What do you think about National Grid's CHP Initiative?

Have you noticed an increase in interest in CHP? If so, to what do you attribute this?

What more should National Grid be doing to support CHP development in Rhode Island?

What do you, your company, or your customers perceive the benefits of CHP to be?

What factors make CHP projects successful or unsuccessful?

Summary of meeting discussion and next steps

Additions for 2016

- **Any other changes to marketing and sales?**
- **Ideas to improve customer acceptance:**
  - Overcome the not my core business barrier through paying for 3 year maintenance contract – include in incentive calc? Gets customer comfortable with operating a plant?
  - Develop a pro forma economic illustration showing all customer benefits and costs over project life (including rebates, standby costs, enviro benefits, air permits)
  - Develop a list of gas marketers that may offer price stability?
  - Adopt streamlined process? Need to learn what these are from other states per VEIC presentation
  - Prequalify vendors?
- **Tighten up rules to give us more assurance about long term viability**